

An Intriguing Volute

By TOM IREDALE.

Years ago I commented upon the close relationship of deep water molluscs trawled off the south-east coast of Australia and the fossils found in Victoria. I examined many specimens when I prepared the report on molluscs from Twofold Bay, New South Wales, and suggested a possible means of indicating relationship (Iredale, 1924). Little consideration has been taken of the suggestions as the duties of a conchologist and those of a palaeontologist rarely bring such authorities in contact and each ploughs his lonely furrow almost at right angles. The present instance will indicate the need of co-ordination to produce a reasonable solution. It must be noted that Mr. B. Cotton, the conchologist at the South Australian Museum, Adelaide, has reported upon recent and fossil members while reviewing some groups in years just past and his account of the Volutes (Cotton, 1949) has been very useful in the present connection.

A few years ago I was shown by the late Mr. Mayblom a fine Volute which he regarded as a hybrid between the well-known *Livonia mamilla* (Sowerby, 1844) and the rare *Pterospira roadknightae* (McCoy, 1881). It showed features suggesting relationship with both of these apparently distantly related species. The species *mamilla* is now well known since the trawlers have brought in many shells from various depths along the south-east coast of New South Wales. It is a very large shell, smooth, brightly coloured, with a large bulbous ("mamillate") apex, hence its name. Little variation has been observed save that the deeper water form has become thinner and much paler in coloration, the aperture becoming shining white, in contrast to the brown of the normal form. It has been named *leucostoma* Mayblom, 1951, subspecifically. There is no pronounced sculpture on the body-whorl of the species. The other species, *Pterospira roadknightae* is a smaller shell, much more solid, duller with less marked coloration, with pronounced longitudinal sculpture transversed by strong threads, and a smaller apex which would not be termed mamillate.

The suggested hybrid was the size of *mamilla*, thin, with similar coloration, but the apex was comparatively smaller, though still of the *mamilla* form, while the adult whorls showed the sculpture of the *roadknightae* form. The matter had to be left in abeyance, but recently a similar specimen was found in the Australian Museum collection, Sydney, among a large number of *mamilla* which had been trawled in Bass Strait, between 60 and 100 fathoms, in August-November, 1912, by the Federal Investigation Vessel *Endeavour*. This renewed consideration of the puzzling form. At first sight it was noted that the large pullus differed a little from that of *mamilla*, but did not recall that of *roadknightae*. The latter had been placed in the genus *Pterospira* Harris, 1897, which was based on the fossil *Voluta hannaefordi* McCoy, 1874, so it became necessary to investigate that species. It proved to have an immense inflated pullus, with the aperture showing a strong posterior wing. The sculpture was pronounced as in *roadknightae*, but there the matter seems to end. Mr. Harold Fletcher, the Museum Palaeontologist, assisted me in the examination of the fossils. The type mentioned above (*hannaefordi*) has a large pullus and expanded wing, but specimens from the type-locality all showed small protoconchs. Cotton's figure (1949, pl. xiv, fig. 13) shows the original features of *hannaefordi*. This variation in the protoconch suggests denial of *Pterospira* for the recent *roadknightae* and reference of that species to *Livonia* Gray, 1855. Examination then of a large number of *mamilla* showed slight variation in the size of the mamillate apex, variation in breadth being between 22 and 27 mm. An item worth consideration is that while *hannaefordi* has been met with in places



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Figure 1.—*Livonia quisqualis* Iredale. Holotype, natural size.

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as a fossil (never in good condition?) there is practically no record of a fossil *mamilla*. Cotton mentions that there may be one specimen in existence and *Voluta mortoni* Tate, 1889, suggests a *mamilla*, but it has a small apex. It may be that these two, *mamilla* and *roadknightae*, have descended from a common ancestor, approaching *hannafordi*, and that the more common *mamilla* is the more recent and more progressive form, *roadknightae* being the older and less advanced. From this suggestion the conclusion might be reached that the present form is a relict of one of the intermediate growth-stages. To keep the matter under review the present form is named.

LIVONIA QUISQUALIS, sp. nov.

(Figure 1.)

Shell large, oval, body-whorl nine-tenths of bulk, spire very short, apical whorl very large, about a quarter of the width of the body-whorl, adult whorls three, increasing rapidly. Coloration brownish-cream splashed with brownish red medially forming two bands. Pullus large, massive, obliquely wound, smooth, first adult whorl small, finely concentrically striate, distant longitudinal ribs developing, earliest obscure, second whorl deeper showing fourteen more developed ribs, more pronounced above the periphery, longitudinal lirae becoming obsolete towards the suture; third body-whorl has lirae much heavier, still mostly above the periphery, fading below, almost vanishing medially, but becoming noticeable again anteriorly, half a dozen well marked ridges being seen, but disappearing towards the outer lip; a large area of transparent glaze over the body-whorl from the inner lip. Three pronounced stout plaits on columella, anterior canal short, rather wide. Outer lip extending posteriorly upwards almost a whorl, then sweeping anteriorly to the canal, aperture fairly wide and open, outer lip thin, slightly recurved.

Length $7\frac{1}{2}$ inches (190 mm.); breadth about half the length, 97 mm. Pullus, height 25 mm., breadth 16 mm. Aperture about two-thirds the length of the shell (120 mm.).

Holotype (Australian Museum registered No. C. 34551) from 60-100 fathoms, Bass Strait.

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